Periscope.

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ANATOMY AND PHYSIOLOGY.

SUR LES FIBRES DE PROJECTION ET D'ASSOCIATION DES HÉMISPHÈRES CÉRÉBRAUX (Concerning Projection and Association Fibres of the Cerebral Hemispheres). Comptes Rendus Hebdomadaires des Séances de la Société de Biologie, February 20th, 1897. By J. Dejerine.

Dejerine refers to the report made by him in 1893 to the Society of Biology, in which he stated that his investigations of twenty-three cerebral hemispheres with cortical lesions demonstrated that the anterior three-fourths of the frontal lobe and the occipital lobe, including the angular gyrus, send no fibres to the crusta, but that all the crustal fibres come from the middle portion of the cerebral cortex (Rolandic region, paracentral lobule, foot of the three frontal convolutions, anterior part of the parietal lobe, middle portion of the temporal lobe) without interruption in the central ganglia, and without receiving additional fibres from these. In the same paper he stated that the internal bundle of the crusta arises in the Rolandic operculum and the foot of the third frontal convolution, and that the external bundle arises in the mid-portion of the temporal cortex, especially in the second and third convolutions.

In his present report he states that in an examination of three cases of superficial cortical lesions in the middle and anterior regions of the frontal lobe he was able to observe distinct degeneration of the anterior limb of the internal capsule and atrophy of the internal thalamic nucleus. In another case in which there was a superficial lesion of the angular gyrus, and the sagittal layers of fibres were not involved in the primary lesion, he was able to trace the degeneration into the pulvinar and the external thalamic nucleus. Secondary degeneration shows also that the lingual and fusiform lobules give origin to projection fibres which pass to the posterior and inferior part of the thalamus.

The views of Flechsig concerning the association centres are not, therefore, admissible. SPILLER.

OBSERVATIONS ON THE HISTOLOGICAL DEVELOPMENT OF THE CEREBELLAR CORTEX IN RELATION TO THE FACULTY OF LOCOMOTION. Aurelio Lui. Revista Sperimentali di I. Freniatria Vol. XXII., fac. 1.

The article is a continuation of work already published by the author and records a series of observations made before and after birth upon the cerebellum of certain birds and animals. The rapid Golgi method was used, and the subjects were sparrows, starlings, rabbits, cats and dogs.

The object of the work was to find out whether or not there was any correlation between the development of the power to walk and the histological structure of the brain, and if so to discover the nature of the changes that took place in the nerve centres while the function of walking was being acquired.

According to the author's observations, the power to walk, as gradually acquired, is accompanied by a progressive modification of the Purkinje cells from the pyramidal type of the young to the more fully rounded type of the adult. The external granular layer is also gradually reduced in thickness, thus leading to the conclusion that there is some such correlation as suggested.

The histology of the cerebellum is treated in a number of details bearing upon the subject. The conclusions which the author reaches may be summed up as follows:

(1) The whole of the external granular layer cannot be regarded as an embryonic stage of the molecular substance.

(2) Development takes place in the internal granular layer independent of the animal's increasing ability to stand or walk.

(3) As the locomotor functions are acquired the Purkinje cells and the cells of the deep layers of the granular zone show the most marked and regular development. It is, therefore, concluded that the Purkinje cells are connected with the power of locomotion.

(4) The correlations between anatomy and function which are the most clearly established are those existing between the processes of Purkinje cells and the ramifying plexuses on the one hand and the descending dendrites of the basket cells and the bodies of the Purkinje cells on the other. JELLIFFE.

THE EFFECTS OF THE LOSS OF SLEEP. By Professor G. T. W. Patrick and Dr. J. Allen Gilbert (Studies from the Psychological Laboratory of the University of Iowa).

These experiments are supposed to be the first of their kind on human subjects. In 1894, at the International Medical Congress, held at Rome, M. de Manaceine reported his experiments on young dogs he kept from sleeping and which died from insomnia at the end of the fourth or fifth day. These University of Iowa experiments were conducted upon three instructors under thirty years of age, of good health and habits, who were kept awake continuously for about ninety hours. They were constantly attended by one or two watchers. They took their regular meals at 7 A. M., 12.30 P. M. and 6 P. M., also a light lunch at 12.30 A. M. Their food was normal in character and amount and their time was mostly engaged in reading, games (both light and active), walking, working upon apparatus, and about one-third of the whole time was occupied with the experiment observations, which were taken every six hours and took two hours each time.

Case 1. An assistant professor, aged twenty-eight, single, health perfect, nervous temperament, of great vitality and activity accustomed to eight hours sleep. By the second night he did not feel very well and was very sleepy. The third night he suffered less, but had a hallucination of sight in the form of a greasy-looking molecular layer of rapidly moving or oscillating particles appearing on or near the floor. On the fourth day and evening he felt well. The daily rhythm showed the sleepy periods to be from midnight to noon, but most marked about dawn. The visual hallucination after the second night had gradually changed from being a layer of particles to a swarm of little bodies like gnats, but colored red, purple or black, and did not change with the position of the eye. Meanwhile his vision